

REMARKS/ARGUMENTS

This is in response to the Office Communication dated July 31, 2007. Applicants thank the Examiner for the opportunity to bring the claims into accord with the previous election, which is done in this submission. Applicants respectfully request that the present listing of claims replaces the listing of claims submitted in the prior Amendment and Reply Under 37 CFR § 1.111 mailed May 7, 2007, and the present Remarks/Arguments supplement the Remarks/Arguments presented in the Amendment and Reply Under 37 CFR § 1.111 mailed May 7, 2007 in response to the Official Action dated January 25, 2007 as to the issued addressed below.

After entry of this amendment, claims 1, 5, 8-11, 13, 15, 18, 19, 21, 25, 29, 32, 34, 41, 45, 47 and 49 are pending, of which claims 21, 25, 34, 41 and 45 are withdrawn. Claims have been amended without prejudice or disclaimer. Claims 1 and 29 have been amended and find support in the specification at page 8, lines 12-26, page 13, lines 18-21, page 19, lines 1-6, page 19, line 27 through page 20, line 23, and page 60, Table 6. Claims 5, 18, 19, 32, 47, and 49 have been amended without prejudice or disclaimer to remove the non-elected subject matter. Further support for the amendment is found at page 20, lines 17-20. Claims 13 and 15 have been amended to correct the antecedent basis and find support *inter alia* in the original claims 13 and 15. Further support for the amendment made to claim 18 is found at page 36, line 27 through page 37, line 5. Claim 19 has been further amended as suggested by the Examiner. Further support for the amendment made to claim 47 is found at page 13, lines 18-21, page 17, lines 1-4, and page 22, lines 10-15. Further support for the amendment made to claim 49 is found at page 13, lines 18-21, and page 46, lines 19-23. No new matter has been added.

Claim Rejections – 35 U.S.C. § 112

Claims 1, 5, 8-11, 13, 15, 18, 19, 29, 32, 47, and 49 were rejected under 35 U.S.C. § 112, first paragraph, for lack of an enabling disclosure and allegedly failing to comply with the written description requirement. Applicants respectfully disagree and traverse the rejections.

Enablement Rejections

Claims 1, 5, 8-11, 13, 15, 18, 19, 29, 32, 47, and 49 were rejected for allegedly not enabling sequence variants, homologs, or parts of SEQ ID NO: 3. Applicants respectfully

disagree. However, to expedite prosecution, the claims have been amended without prejudice or disclaimer to recite the glutaredoxin or thioredoxin coding nucleic acid comprises the nucleotide sequence of SEQ ID NO: 3 or a homolog thereof. The homolog is further defined as being a nucleic acid that encodes a protein having an amino acid sequence with at least 80% identity with the sequence of SEQ ID NO: 4. Thus, the claims as amended encompass nucleic acids encoding proteins that share a sequence identity of at least 80% at the amino acid level with the sequence of SEQ ID NO: 4 and have the activity of an ORSRP.

Furthermore, it is submitted that the claims as amended recite a scope of subject matter which a skilled artisan could clearly make and use according to the teaching in the specification. As described in the specification, "non-essential" amino acid residues can be altered from the wild-type sequence of glutaredoxin or thioredoxin without altering the enzymatic activity. See Specification at page 19, lines 8-26. For instance, conservative amino acid substitution having a similar side chain can be used to replace non-essential amino acid residues. Specification at page 21, lines 19-22. From this guidance and the guidance of "consensus sequences" as disclosed, the skilled artisan would be directed to mutations least likely to impair function. Methods of introducing such mutations, such as site-directed mutagenesis and PCR-mediated mutagenesis as described in the specification at page 21, lines 7-22, are standard techniques readily available and known to those skilled in the art. It is further submitted that the screening and selecting a homolog with the specified sequence homology and function is routine to those skilled in the art. Thus, in view of the amendments, and further in view of the guidance provided in the specification, Applicants respectfully submit that the specification is enabling for the claimed subject matter.

The Examiner further rejected the claims as not enabling for increasing plant tolerance to any environmental stress. In response, Applicants have amended the claims to recite that one or more of the specified environmental stresses are improved in the plant cell or plant. In view of the amendments, reconsideration and withdrawal of this rejection is respectfully requested.

Rejections to claims 1 and 29, and 47 and 49 are believed to be rendered moot in view of the claim amendments.

Written Description Rejection

Claims 1, 5, 8-11, 13, 15, 18, 19, 29, 32, 47, and 49 were further rejected for allegedly lack of adequate written description with regard to sequence variants, homologs, or parts of SEQ ID NO: 3. The Examiner asserted that the specification fails to describe the structure of the claimed genus, nor does the specification provide a correlation between the structure of the genus and the function of imparting stress tolerance in a transgenic plant. The Examiner further asserted that the specification fails to identify conserved functional domains shared by the members of the claimed genus. Applicants respectfully disagree.

As discussed above, the claims as now amended encompass nucleic acids encoding proteins that share a sequence identity of at least 80% at the amino acid level with the sequence of SEQ ID NO: 4 and have the activity of an ORSRP. The specification further provides motif domains defined by consensus sequences and represent common structure of the ORSRP proteins which correlates to the function of the proteins. See Specification at pages 58-59. In light of the amendments, reconsideration and withdrawal of this rejection is respectfully requested.

Claim Rejection – 35 U.S.C. § 102

Claims 1, 5, 8-11, 13, 15, 18, 19, 29, 32, and 47 are rejected under 35 U.S.C. § 102(b) as being anticipated by Lanahan et al. Applicants respectfully disagree.

Please note initially that the claims as amended are drawn to a transgenic plant cell or plant, or a method of producing the same, using an ORSRP encoding nucleic acid comprising the nucleotide sequence of SEQ ID NO: 3 or a defined homolog thereof. The claims as amended further define the homolog as one encoding a protein with a particular amount of sequence identity with SEQ ID NO: 4. Lanahan et al. disclose a transgenic plant expressing a nucleotide sequence encoding a heat-stable thioredoxin and a method of producing the same, but do not teach a transgenic plant which expresses a glutaredoxin or thioredoxin protein as now claimed. Therefore, it is submitted that Lanahan et al. do not anticipate the claimed invention. Reconsideration and withdrawal of the rejection is respectfully requested.

CONCLUSION

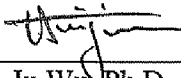
In view of the previous remarks and arguments in the Amendment and Reply Under 37 CFR § 1.111 dated May 7, 2007 and above remarks, and further in view of the above

amendments, Applicants respectfully request withdrawal of the rejections and allowance of the claims.

Applicants reserve all rights to pursue the non-elected claims and subject matter in one or more divisional applications, if necessary.

Applicants are submitting their response herewith within the one-month response period set to expire on August 31, 2007. Applicants believe no fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 03-2775, under Order No. 13311-00012-US from which the undersigned is authorized to draw.

Respectfully submitted,

By 

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